

FOSSIL CYDNIDAE (HETEROPTERA) IN THE DOMINICAN AMBER

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Abstract.—Three new fossil species of burrower bug (Heteroptera: Cydnidae) are described based on four specimens from Tertiary Dominican amber. The three new species, *Dallasiellus succineus*, *Amnestus electricus*, and *Amnestus priscus*, are assigned to extant genera.

Burrower bugs (Cydnidae: Heteroptera) are common insects in tropical habitats. They are also among the commonest representatives of the fossil Heteroptera in Tertiary shale deposits (Scudder, 1890; Schaefer and Crepet, 1986). They are much less common as amber fossils, and in fact, have yet to be found in the extensive deposits of amber from the Baltic Tertiary. There is one report of a thaumastellid, a cydnid in the broadest sense, from Cretaceous Lebanese amber (Dolling, 1981) and two specimens are known from Oligo-Miocene amber from Chiapas, Mexico (Thomas, 1988). This is the first report of the family in the Dominican amber.

The age of the Dominican amber is problematic. Using nuclear magnetic resonance spectroscopy, Lambert et al. (1985) calculated a range of ages from 15 to 40 million years, depending on the deposit from which it originated. Grimaldi (1987, 1991) though, recommended caution before accepting any of the NMR dates. There are some 10 major amber mines in the Dominican Republic but only one, the Palo Alto mine near Santiago in the Cordillera Septentrional has been directly dated by stratigraphy. The Palo Alto amber deposits intercalate with Lower Miocene marine strata bearing foraminifera that correlate to 20–23 MYBP (Baroni-Urbani and Saunders, 1982). Because the amber is secondarily deposited in estuarine sediments giving rise to these strata, the estimated age of the amber is a minimum one, though presumably not much older. The rock surrounding these deposits has been dated at 25–40 MYBP (Poinar, 1992).

Unfortunately, many amber specimens are purchased under conditions that obscure their origin. Of the four cydnid fossils available for study, three have labels only indicating that they were purchased in the Dominican Republic. Grimaldi (1987) indicated that an age of Lower Miocene is applicable to the bulk of Dominican amber. The fourth specimen bears the indication “La Toca.” According to Poinar (1992) the La Toca mine is the oldest deposit on the island and based on NMR spectroscopy has an estimated age of 40 MYBP (Eocene). An Eocene age for this specimen can be accepted only with great reservation. It clearly belongs to the extant genus *Amnestus* which is neotropical in distribution, ranging from the southern United States to Brazil. Until the age of these deposits can be confirmed the less precise designation of Tertiary is preferred.

MATERIALS AND METHODS

These amber specimens were prepared (cut, ground and polished) using the methods of Grimaldi (1993). The inclusions were studied under an ordinary dissecting microscope, with the amber immersed in mineral oil.

RESULTS AND DISCUSSION

The four specimens were found to represent three new species in two genera. The genera to which they are unquestionably assignable are modern forms extant in the Caribbean region. The species, though differing from extant forms, are clearly related to the Caribbean fauna.

Dallasiellus (Dallasiellus) succineus, new species

(Fig. 1)

Description. Elongate, oval; depressed above, convex below; length 7.0 mm; color black with hemelytral membrane clear. Margin of juga carinate, apices convergent but not contiguous, each jugum with three submarginal setigerous punctures; canthus of eye with stout laterally directed seta. Dorsum of head impunctate, smooth, flat, without impression at apex of clypeus. Antennal segments II and III subequal, slightly longer than I, slightly shorter than IV or V which are subequal in length. Rostrum extends slightly past mesocoxae in type, perhaps reaching metacoxae when completely reposed.

Pronotum slightly wider than long; lateral margins with five submarginal setigerous punctures. Each costa with one setigerous puncture. Post-frenal portion of scutellum brief, narrow, apex obtuse; clavus almost reaches apex. Posterior disc of scutellum with coarse scattered punctures. Mesocorium with one row of punctures closely adpressed to claval suture.

Evaporatorium without interruption on mesopleura; of metapleura also entire, its margin straight, not deeply concave, extending to lateral edge of metapleura anteriorly. Orifical peritreme obscured in type. Protibia compressed, clavate; ental margin with three long socketed spines, ectal margin with seven socketed spines successively longer distally. Meso- and metatibia terete with numerous uniform spines on all surfaces; metatibia lacking subbasal angulation.

Holotype. Female, labeled: AMNH DR-10-13, Amber: Dominican Republic.

Remarks. In both Froeschner's (1960) original key to the species of the subgenus *Dallasiellus*, and in his later (1980) modified key, the fossil specimen falls out with the Central American species *D. bacchinus* Froeschner. It differs from that species in lacking the characteristic impression of the clypeus and in having only one row of punctures on the mesocorium. The only recent species in the nominate subgenus of *Dallasiellus* occurring in the Antilles is *D. lugubris* Stål (Froeschner, 1960) and I consider the fossil example to be closest to that species. *Dallasiellus lugubris* is widespread, occurring from the United States to Argentina, including the West Indies. Froeschner (1960) notes that it is a polytypic form encompassing several nominal segregates, all of which he treats as synonyms. Material used for comparison was from Belize and Mexico. The salient differences are the larger size of the amber form and the presence of only one row of punctures on the mesocorium (versus two in *D. lugubris*).



Fig. 1. *Dallasiellus succineus*, new species.

***Amnestus electricus*, new species**

(Fig. 2)

Description. Form oblong, subparallel; dorso-ventrally compressed. Length, 2.0 mm. Color tan with hemelytral membrane clear.

Clypeus distinctly longer than juga by about two-thirds its width; apex with four pegs. Each jugum with four marginal pegs, posterior pair smaller than anterior pair, submargin with five setigerous punctures. Antennae appearing four-segmented as segment II is minute.

Pronotum with coarse scattered punctures except on calli; submargin with eight setigerous punctures; length slightly less than hemelytral corium. Scutellum slightly longer than wide; lateral margins closely punctate. Claval commissure present; clavus with triple row of punctures; mesocorium with two long and one short row of punctures; exocorium with short oblique rows of punctures.

All femora unarmed. Protibiae strongly expanded apically with four large curved



Fig. 2. *Amnestus electricus*, new species.



Fig. 3. *Amnestus priscus*, new species.

spines at apex and four socketed spurs on ectal margin, successively larger towards apex. Mesotibia with eleven slender spines on ectal margin.

Holotype. Female, labeled: "AMNH DR-10-22, Dominican Republic, La Toca." Deposited AMNH. *Paratype*: Female, labeled: "AMNH DR-8-389, purchased in Santo Domingo." Deposited AMNH.

Remarks. The closest extant species is *Amnestus pusio* (Stål), which occurs from the United States to Brazil, including the Greater Antilles. The fossil species differs in having the pronotal calli impunctate, a longer scutellum and a more densely punctate corium.

***Amnestus priscus*, new species**

(Fig. 3)

Description. Form elongate-oval, dorso-ventrally compressed; color tan except hemelytral membrane transparent. Length 2.6 mm.

Clypeus only slightly longer than juga; apex with four pegs. Margin of each jugum with five pegs and four long submarginal setae. Antenna appearing four-segmented as segment II is minute.

Pronotum slightly wider than long with a transverse furrow, coarsely and densely punctate posterior to furrow, sparsely punctate anterior to furrow. Anterolateral pronotal margin carinate, arcuate in dorsal view with five setigerous punctures. Scu-

tellum slightly wider than long with regularly scattered large punctures. Claval commissure present. Clavus with three rows of small punctures; mesocorium with coarse shallow punctures except at middle of disk; exocorium with scattered shallow punctures. Posterior margin of corium strongly sinuate.

Profemora with strong bifid spine at middle of ental margin directed obliquely away from base. Metafemora with subapical oblique spur about two-thirds width of femur. Protibia flattened, without angulate projection, expanded apically with four stout spines on ectal margin and apex, one other at apex of ental margin. Meso- and metatibiae subterete with numerous slender spines on all surfaces.

Holotype. Male, labeled: "Amber: Oligomiocene Dominican Republic, specific locality unknown. Purchased from Ramon Martinez, Santiago. AMNH No. DR-8-48."

Remarks. This specimen agrees in most characters with the recent Cuban species, *Amnestus trimaculatus* Froeschner. It differs by lacking an angular projection on the protibia. Also, it differs in the distribution of punctures on the exocorium which is a definitive feature of *A. trimaculatus* (Froeschner and Baranowski, 1970). The markings on the hemelytra found in *A. trimaculatus* are not in evidence, but this is perhaps artificial.

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